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ABSTRACT

In an investigation of the effectiveness of self-managed reading improvement programs, a program incorporating self-monitoring (observing and recording relevant activity), self-reinforcement (increasing the probability of some target behavior by the self-presentation of positive consequences or the removal of negative consequences), and shaping (setting intermediate goals and emphasizing gradual improvement) was administered to 204 undergraduate study skills students. There were two self-reinforcement conditions (performance and improvement contingent), a monitoring control condition, and a no treatment control group. The treatment lengths were six weeks and eight weeks. Analysis of pretest and posttest results indicated that the performance contingent self-reinforcement group showed an average reading rate increase of 35% and that students in all three experimental conditions showed significant improvement in reading rate over those in the control group. Comprehension was unaffected. There were no differences between males and females or between treatment lengths. The results seem to emphasize the importance of programs of reading improvement and to highlight differences in self-reinforcement strategies. (Author/GT)

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A Self-Managed Reading Improvement Program

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Abstract

A reading improvement program, incorporating self-monitoring, self-reinforcement, and shaping, was administered to 204 study skills students. There were two self-reinforcement conditions (performance and improvement contingent), a monitoring control condition, and a no treatment control group. The performance contingent self-reinforcement group showed an average increase in reading rate of 35% over the course of the treatment. All three experimental conditions showed significant improvement in rate over the control group. Comprehension was unaffected. There were no differences between males and females or between treatment lengths of six and eight weeks. The results seemed to emphasize the importance of persistent practice in reading improvement and highlighted differences in self-reinforcement strategies in self-management.

A Self-Managed Reading Improvement Program

Among college students, proficiency in reading has been related to grade point average (Blake, 1956) and scholastic success (Smith & Wood, 1957), and it may well be a central determinant of success both within and without the walls of the university (Harris, 1970). Recently, several investigators have documented that college students are reading at levels which are considered inadequate (Gibson, 1971; Harris, 1976; Kurzman, 1974). Olsen and Swiss (1976) suggested that many students will have difficulty in completing college because of problems specifically associated with reading. To meet the challenge of retaining students with skill deficits in reading and in other areas, Ferguson (1976) suggested that colleges should provide "instructional programs designed to help ill-prepared students acquire the required skills ... necessary for success in college and, by inference, for success in their life work" (p. 27).

Harris (1970) noted that there were two major types of remedial programs for reading skills. One, called a controlled approach, usually involves the use of reading accelerators and other mechanical devices. A motivated approach, a second type of program, is characterized by a design intended to motivate (or,

at least, induce) the reader to do a large amount of reading. In this way, and through the use of timed silent reading trials and subsequent comprehension checks, it is expected that the reader will overcome specific interfering habits, such as excessive eye fixations and extreme subvocalization. Combinations and comparisons of these two approaches have indicated that the motivational aspects of each are important factors in improvement (Brandt, 1975; Harris, 1970).

The potential impact of reading improvement programs can be seen in the results of two representative investigations. Swalm and Kling (1973) evaluated a motivated program and a free-reading control procedure and reported substantially larger gains in reading rate for the students who had done the timed drills ($\bar{X}_{pre} = 152$ wpm, $\bar{X}_{post} = 408$ wpm) over the gains of the others (149 wpm, 180 wpm), without any losses in comprehension. Himelstein and Greenburg (1974) obtained similar results with an operant procedure, increasing the reading rate of the experimental subjects from an average of 283 wpm to 421 wpm, and decreasing the rate of the control subjects to 260 wpm. They also reported that there were no significant differences between the two groups on the comprehension variable, before or after the experimental manipulation. In general, the motivated approach seems to be effective in increasing reading speed without adversely affecting

comprehension.

One area of current psychological research and practice which may be applicable to the improvement of students' reading skills is the area of self-management (or self-control). Mahoney (1972a) referred to self-management as any procedure involving self-regulated behavior change in which the individual is regarded as the agent of change, determining the direction, extent, and methods of change for her/himself. Many behavior problems, from weight control (Harris & Hallbauer, 1973; Mahoney, 1972b) to studying behavior (Jackson & van Zoost, 1972; McReynolds & Church, 1973), have been treated successfully using a self-management paradigm. Extrapolating from these successful applications, there are several elements of self-management which seem to be relevant to reading improvement programs, specifically self-reinforcement, shaping, and self-monitoring. Self-reinforcement is intended to increase the probability of some target behavior either by "the self-presentation of positive consequences (SR+) or by the removal of negative consequences (SR-)" (Mahoney, 1972a). Shaping is achieved by setting intermediate goals and emphasizing gradual improvement (Miller & Gimpl, 1972; Watson & Tharp, 1972). Self-monitoring of behavior, the observation and recording of relevant activity, is an integral

component of a self-managed intervention and it may be a major factor in producing change. The potential benefits of remedial programs which are designed as motivated approaches may be enhanced by incorporating these self-management principles.

The motivated approach to reading improvement, in fact, lends itself to self-management concepts. It is characterized by self-pacing and self-monitoring (Harris, 1970). Self-reinforcement for either improvement or participation easily can be added as an extension of the monitoring process. Goal-setting can emphasize small increments in rate instead of large eventual gains. It may be that certain strategies of self-reinforcement highlight different components of a reading program, and therefore affect the amount of improvement. It is also important to determine whether the reading program, with or without self-management facets, is able to produce greater improvement than no treatment. These questions are important for what can be learned about self-management and about reading improvement programs. If a reading program can improve the reading and self-management skills of its participants, then it may also serve the larger purpose of developing better functioning students, and, ultimately, better functioning persons.

Method

Participants. Subjects were undergraduate students enrolled

in a study skills and personal effectiveness course during Winter Quarter, 1977. Data from 204 subjects (89 males, 115 females) were collected. The subjects were mostly freshman and sophomore students and the majority were between 18 and 22 years of age. There were seven instructors (1 female, 6 males) who participated in this study. All were second year graduate students in Counseling Psychology and all had experience in teaching the course. Four of the instructors volunteered to include a reading program in their classes; the remaining three volunteered their sections as control classes. In all, students from 12 sections of the study skills class were involved. Table 1 shows the distribution of participants.

Insert Table 1 about here

Measures. Reading rate and comprehension were assessed by the Robinson-Hall Reading Tests (Robinson & Hall, 1949). The Robinson-Hall tests provide separate measures for rate and comprehension and have two parallel forms which are appropriate for use in test-retest situations. The Canadian History form was used as a pretest, and the Russian History form as the posttest. Previous research (Ruppel, Note 1) indicated that the means for study skills students on the two tests were different than those in the manual;

therefore, the raw scores were converted to standard scores before statistical analysis began. The scores from the subjects in the control groups were used to obtain the means and standard deviations required for this transformation. There were no significant differences between these statistics and those compiled by Ruppel (Note 1).

Reading Program. The subjects were instructed to locate and use in the reading program a book of their own choosing. The materials distributed to them included: (1) a set of instructions, which detailed the mechanics of timing and monitoring their reading trials, (2) a conversion chart, which was used to calculate goals of slight reductions in time for each successive trial, and (3) a weekly monitoring sheet, which provided a standard form for monitoring and recording performance on a daily basis. The instructions called for the students to do a set of four reading trials each day for five days a week. The exercises required the students to time themselves as they read a selected length of page, set a goal of a slight reduction in time needed to read that length of page on the next trial, and then repeat the process three more times. As the program progressed, they were directed to read longer passages (from $\frac{1}{2}$ to 1, 2, 3, and 4 pages), and the percentages of reduction in the goal calculation were decreased (from 10 to 7, 5, and 3%). In this way, the

students gradually increased the amount of their reading, and emphasis was placed on slow but steady decreases in reading times, in keeping with the concept of shaping. Self-monitoring involved filling out the weekly monitoring sheets as they did the exercises. In all, doing the reading trials, calculating the goals, and recording the times required between 10 and 15 minutes outside of class. Following the pretest, the instructors modeled the procedures involved and instructed their students to begin the reading exercises that day. Each week, the participants submitted a completed monitoring sheet and received a new one, until the week of the posttest.

Treatments. The experiment employed a 2×4 design, crossing Treatment Length with Treatment Type. The Treatment Lengths were six weeks and eight weeks, representing the intervals between the pretest and the posttest. The Treatment Types referred to the form of self-reinforcement strategy used and were described as:

(a) Improvement Contingent Reinforcement (ICR), in which the participants were instructed to reward themselves only if they surpassed a specified number of goals in the reading exercises each day;

(b) Performance Contingent Reinforcement (PCR), in which the participants were instructed to reward themselves after completing the daily exercises, whether or not their reading times decreased;

(c) Monitoring Control (MC), in which the participants were not instructed in any reinforcement strategy, but were told to do the exercises and record their progress;

(d) No Treatment Control (NTC), in which the participants did not participate in the reading program, except for the pretest and the posttest.

Reward was defined as self-determined pleasurable activity, intended as positive reinforcement.

Assignment of participants to each condition was determined by class section. There were 12 sections and 7 instructors, but, to attenuate instructor effects, no instructor who had 2 sections (there were 5) had both classes in the same cell of the 2 x 4 design.

Overview. All participants were given the Robinson-Hall Canadian History Test as a pretest in either the second or fourth week of the quarter. Then, a standard lecture on reading difficulties was presented to each class. The students in the 8 treatment sections were instructed to begin the reading program that day. The students in the control classes received no further instruction about reading improvement in class during the experiment. The students in all 12 classes were tested again in the tenth week of the quarter with the Robinson-Hall Russian History Test. Students were urged to compare their pretest and

posttest scores for both rate and comprehension.

Results

The rate and comprehension scores from the pretest and the posttest for each subject were converted to standard scores. Difference scores (ΔSS) for each subject were then obtained by subtracting the pretest standard scores from the posttest standard scores for the two variables. Table 2 shows the initial means for rate for each group, as well as the mean changes (in words per minute), estimates of the percentages of the mean changes, and adjusted posttest means for rate. Table 3 presents similar information for the comprehension variable.

Insert Tables 2 and 3 about here

A three-way analysis of variance for fixed effects using the method of unweighted means was done on each set of difference scores (Myers, 1972). Table 4 displays the results of that analysis for the change in rate scores, and Table 5 displays the results for the change in comprehension scores. An estimate of the proportion of variance accounted for by each factor (ω^2) was calculated and is included for each.

Insert Tables 4 and 5 about here

Significant effects on reading rate for Treatment Length, Treatment Type, and the interaction of TL x TT are reported in Table 4. Treatment Type and its interaction with Treatment Length combined to account for 24% of the observed variance. Seventeen comparisons were made between the mean change in rate scores of the groups, using the Bonferroni t statistic (Kirk, 1968). A schematic summary of those comparisons is presented in Table 6.

Insert Table 6 about here

Groups which received the reading program (ICR, PCR, and MC) increased their rate significantly more than groups which received no specific reading program (NTC). In addition, the groups which used the performance contingent reinforcement strategy (PCR) increased their rate significantly more than all other groups except for the eight week monitoring control group (8 MC). There was no significant main effect for sex on change in rate.

In the analysis of variance for change in comprehension, only the three-way interaction was found to be significant, and it explained 12.7% of the variance. Males generally lost more than females in comprehension over the course of the treatment, except for those in the 8 ICR and 6 PCR groups wherein that condition was reversed. This analysis served as a check against significant

decreases in comprehension which might accompany increases in rate. The results generally support the contention that no significant decreases in comprehension occurred.

Discussion

Three major conclusions are suggested by the results presented in the preceding section. The first is that this program of reading improvement instruction, based on a motivated approach and emphasizing shaping and self-monitoring of behavior, was reasonably successful in increasing participants' reading speeds without adversely affecting their comprehension. Mean increases in rate of up to 65 words per minute (wpm), representing a 36% increase over the mean initial rate, were found among a sample of students enrolled in a study skills course (range of mean changes: 12.5 to 65.8 wpm). This improvement was achieved without involving a large amount of time (in or out of class) and without making the reading program a central part of the course. The incorporation of self-management principles also seems to be an effective method of increasing reading speed. The results reported here support the use of such a program with a population of study skills students, and suggest that other populations, such as regular students or returning adult students, in class or in counseling situations, may also benefit from similar interventions.

The second conclusion supported by the results is that the eight week program produced only slightly greater improvement in rate than did the six week program. This may be due to decreased motivation over time, or to situational, sampling, or testing anomalies. The results do support the use of either length program; it is assumed that the shorter one is favored because of its relative efficiency.

A third conclusion centers around the results which reflected differences in improvement between the reinforcement strategies. The groups using the performance contingent reinforcement (PCR) strategy improved their reading speed significantly more than the improvement contingent reinforcement (ICR) groups ($p < .01$). In other words, the subjects who could reward themselves for doing the exercises conscientiously did better than those who could only reward themselves when they improved. As a consequence, self-reinforcement for trying to improve (whether or not improvement occurred) was more effective than self-reinforcement for improvement. A probable hypothesis for this outcome is that subjects in the PCR condition rewarded themselves more often and more consistently in connection with the reading exercises and therefore were more likely to do the exercises faithfully. This hypothesis tends to emphasize the importance of practice in motivated approaches to reading improvement (cf. Harris, 1970),

and implies that the choice of a self-reinforcement strategy is a salient consideration. The PCR strategy seems to be a good one, and the results support its use in future programs, reading and otherwise.

The monitoring control (MC) groups improved more than was anticipated. It seems that self-monitoring can be a very effective vehicle of change in self-managed interventions. However, the extent of the effect of the MC condition may be affected by the initial rate of the subjects, possibly indicating a ceiling or plateau effect of some sort. It also should be noted that improvement may have an intrinsic reinforcement value which far outweighs any extrinsic rewards, even when the latter are self-administered.

Several of these questions could be explored by an examination of the weekly monitoring sheets. A correlation may exist between the number of self-administered rewards and improvement in the program. Other personality and achievement variables, such as motivation, grade point average, instructor-student relationship, and aptitude scores, may be related to improvement and should be considered in subsequent research.

In summary, a reading program, using a motivated approach and principles of self-management, was effective in producing increases in reading rate without producing serious decreases in

reading comprehension. The results indicated that a strategy which called for the administration of positive self-reinforcement contingent upon the performance of daily reading exercises produced greater increases than either a strategy which required improvement before self-reinforcement or a strategy which contained no instructions about self-reinforcement. This outcome provided support for the hypothesis that persistent practice was a salient factor in reading improvement and pointed toward the importance of the form of self-reinforcement strategy used in self-managed interventions of this type.

Reference Note

1. Ruppel, G. Standardization of reading rate and comprehension scores for study skills students. Unpublished report, The Ohio State University, 1976.

References

- Blake, S. W. Do probationary college freshmen benefit from compulsory study skills and reading training? Journal of Experimental Education, 1956, 25, 91-93.
- Brandt, J. D. Internal versus external locus of control and performance in controlled and motivated reading rate improvement instruction. Journal of Counseling Psychology, 1975, 22, 377-383.
- Ferguson, R. L. The decline in ACT scores: What does it mean? Educational Technology, 1976, 16, 21-27.
- Gibson, W. D. Relationship between difficulty levels of assigned English texts and reading ability of community college students. Dissertation Abstracts International, 1971, 31, 6362-A.
- Harris, A. J. How to increase your reading ability (5th ed.). New York: David McRay, 1970.
- Harris, M. A., & Hallbauer, E. S. Self-directed weight control through eating and exercise. Behavior Research and Therapy, 1973, 11, 523-529.
- Harris, W. U. The SAT score decline: Facts, figures, and fallacies. Educational Technology, 1976, 16, 15-20.

- Himelstein, H. C., & Greenburg, G. The effect of increasing reading rate on comprehension. Journal of Psychology, 1974, 86, 251-259.
- Jackson, B., & van Zoost, B. Changing study behaviors through reinforcement contingencies. Journal of Counseling Psychology, 1972, 19, 192-195.
- Kirk, R. E. Experimental design: Procedures for the behavioral sciences. Belmont, California: Brooks/Cole, 1968.
- Kurzman, M. Reading ability of college freshmen compared to the readability of their textbooks. Reading Improvement, 1974, 11, 13-25.
- Mahoney, M. J. Research issues in self-management. Behavior Therapy, 1972, 3, 45-63. (a)
- Mahoney, M. J. Self-reward and self-monitoring techniques for weight control. Dissertation Abstracts International, 1972, 32, 3951-B. (b)
- McReynolds, W. T., & Church, A. Self-control, study skills development, and counseling approaches to the improvement of study behavior. Behavior Research and Therapy, 1973, 11, 233-235.
- Miller, A., & Gimpl, M. P. Operant verbal self-control of studying. Psychological Reports, 1972, 30, 495-498.

Myers, J. L. Fundamentals of experimental design (2nd ed.).

Boston: Allyn and Bacon, 1972.

Olsen, T., & Swiss, T. College reading programs. Journal of Reading, 1976, 19, 523-527.

Robinson, F. P., & Hall, P. Manual for the Robinson-Hall Reading Tests. Columbus, Ohio: The Ohio State University, 1949.

Smith, D. E., & Wood, R. L. Reading improvement and college grades: A follow-up. Journal of Educational Psychology, 1957, 46, 151-159.

Swalm, J., & Kling, M. Speed reading in the elementary school. Elementary School Journal, 1973, 74, 158-164.

Watson, D. L., & Tharp, R. G. Self-directed behavior: Self-modification for personal adjustment. Monterey, California: Brooks/Cole, 1972.

Table 1
Distribution of Participants

Treatment Length	Treatment Type				Total
	ICR	PCR	MC	NTC	
6 weeks	31 (2)	23 (1)	19 (1)	30 (2)	103 (6)
8 weeks	15 (1)	42 (2)	19 (1)	25 (2)	101 (6)
Total	46 (3)	65 (3)	38 (2)	55 (4)	204 (12)

Note. ICR = Improvement Contingent Reinforcement; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; NTC = No Treatment Control. Numbers in parentheses represent the number of class sections in each cell.

Table 2

Group Means for Rate and Rate Change at Posttest

Group	<u>n</u>	$\bar{X}$ initial rate	$\bar{X}$ posttest rate	$\bar{X} \Delta$ wpm	$\bar{X}\%$ change
8 PCR	42	181.70	247.47	65.77	36.20
6 PCR	23	185.27	248.54	63.27	34.15
8 MC	19	171.37	230.47	59.10	34.49
6 ICR	31	193.34	226.73	33.39	17.27
8 ICR	15	162.83	185.20	22.37	13.74
6 MC	19	224.52	236.98	12.26	5.55
8 NTC	25	189.96	197.30	7.34	3.86
6 NTC	30	188.18	180.84	-7.34	-3.90
Total	204	187.48	221.35	33.88	18.07
RP	149	186.92	233.55	46.63	24.95
NTC	55	188.99	188.32	-.67	-.004

Note. 8 = 8 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control; RP = Reading Program (PCR, MC, and ICR groups). Means for initial rate and for change in rate are estimates calculated from the corresponding SS used in the analysis of variance. Means for columns 3, 4, and 5 are expressed in words per minute (wpm).

Table 3
Group Means for Comprehension and
Comprehension Change at Posttest

Group	<u>n</u>	$\bar{X}$ initial comp	$\bar{X}$ posttest comp	$\bar{X}\Delta$ comp	$\bar{X}\%$ change
8 PCR	42	60.89	52.39	-8.50	-13.96
6 PCR	23	64.20	57.28	-6.92	-10.78
8 MC	19	65.05	58.14	-6.91	-10.62
8 ICR	15	63.34	57.05	-6.29	-9.93
6 MC	19	68.41	63.65	-4.76	-6.96
6 ICR	31	61.53	58.15	-3.38	-5.49
8 NTC	25	63.69	61.58	-2.11	-3.31
6 NTC	30	55.89	57.11	1.22	2.18
Total	204	62.24	58.17	-4.67	-7.50
RP	149	63.27	57.78	-6.29	-9.42
NTC	55	59.44	59.14	-.29	-.49

Note. 8 = 8 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control; RP = Reading Program (PCR, MC, and ICR groups). Means for initial comprehension and for change in comprehension are estimates calculated from the corresponding SS used in the analysis of variance. Means for columns 3, 4, and 5 are expressed in percentages correct.

Table 4
Summary of Analysis of Variance for
Change in Rate Scores at Posttest

Source of Variance	df	MS	F	p	ω^2
Treatment Length (TL)	1	31724.67	4.36	.038	.012
Treatment Type (TT)	3	128228.32	17.62	.000	.172
Sex (S)	1	19743.21	2.71	.101	.006
TL x TT	3	27646.78	3.80	.011	.068
TL x S	1	157.76	.02	.883	0
TT x S	3	10584.60	1.45	.228	.011
TL x TT x S	3	10888.06	1.50	.217	.026
Error	<u>187</u>	7278.28	--	--	.706
Total	203				

Table 5
Summary of Analysis of Variance for Change
in Comprehension Scores at Posttest

Source of Variance	df	MS	F	p	ω^2
Treatment Length (TL)	1	12905.46	1.16	.282	.001
Treatment Type (TT)	3	19707.61	1.78	.153	.010
Sex (S)	1	4162.28	.38	.541	0
TL x TT	3	313.36	.02	.994	0
TL x S	1	8310.07	.75	.388	0
TT x S	3	9261.71	.83	.477	0
TL x TT x S	3	33413.67	3.01	.031	.127
Error	<u>188</u>	11102.07	--	--	.862
Total	203				

Table 6

Summary of Comparisons of Means for Change in Rate

Treatment Length

8 wk 6 wk

Treatment Type

PCR MC ICR NTC

TL x TT

<u>8 PCR</u>	<u>6 PCR</u>	<u>8 MC</u>	<u>6 ICR</u>	<u>8 ICR</u>	<u>6 MC</u>	<u>8 NTC</u>	<u>6 NTC</u>
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Note. 8 = 8 week; 6 = 6 week; PCR = Performance Contingent Reinforcement; MC = Monitoring Control; ICR = Improvement Contingent Reinforcement; NTC = No Treatment Control. Groups underlined by a common line do not differ significantly, and groups not underlined by a common line do differ significantly. (p .05).